

2. Rejection of Claims 1-4 Under 35 USC §103(a) in View of Admitted Prior Art in view of U.S. Patent No. 4,733,591 (Kaneko)

This rejection is respectfully traversed on the grounds that the admitted prior art and the Kaneko patent, whether considered individually or in any reasonable combination, fail to disclose or suggest the following features:

- a. a voice data generator for inputting a plurality of multi-channel control signals, and a voice generator for receiving the signals for output to a loudspeaker, as recited in claim 1 (the admitted prior art involves a single control signal, while Kaneko fails to disclose any sort of voice data generator);
- b. the step of inputting each of a plurality of control signals to the corresponding voice data generate, as recited in claim 1;
- c. a channel selecting signal for controlling a channel selector to successively sample the plurality of voice signals with a sampling rate that permits each channel to be sampled once per cycle to generate the multi-channel voice signal containing periodically alternative voice signals, as recited in claim 1;
- d. adjusting the ratio of a specific voice signal to a synthesized voice by changing the number of channels occupied by the specific voice signal, thereby simplifying volume control for the specific voice signal as recited in claim 4.

The applicant's time division method enables the ratio of specific voice signals to a synthesized voice to be easily adjusted by changing the numbers of channels occupied by the specific voice signal, and yet avoids the need for the adder used in the admitted prior art, thereby avoiding the negative effect of the adder on voice resolution (page 3, lines 23 *et seq.*). It does so by having each voice data generator generate a voice signal of an associated channel, utilizing the channel selector to successively sample the voice signals of the different channels to generate an "alternative voice signal," and sending the resulting time-time division or "alternative voice" signal directly to the voice generator *without being demodulated beforehand*.

The admitted prior art, in contrast, processes one voice signal per channel rather than distributing the voice signal over different channels, and sums the voice data before sending it to a PWM voice generator, which provides the speaker signal. The voice data is not sampled on different channels, as claimed, and is not output in the form of a "multi-channel voice signal containing periodically alternative voice signals, which are directly sent to the voice generator.

According to the Examiner, *"the applicant's admitted prior art fails to disclose the limitation regarding the control signal for activating a channel selector to generate a time-division signal, or a power amplifier. The examiner maintains that such a technique was well known in the art."* While the control signal mentioned by the Examiner might be known in the art, the claimed channel selecting signal does not simply "activate the channel selector," but rather causes sampling of a plurality of voice signals on different channels, and therefore does not correspond to the "control signal" mentioned by the Examiner.

Further, while the time division multiplexer of Kaneko might be modified to achieve the claimed multiple channel sampling of voice signals, there is no suggestion in Kaneko to apply the time division multiplexer disclosed therein to the admitted prior art arrangement. The justifications given by the Examiner, namely "for the purpose of reducing the size and complexity of such a system and enhancing the quality of the multi-channel audio output," are not found in the Kaneko patent, which does not concern the type of voice signals claimed. There is no evidence that use of Kaneko's multiplexer would in fact reduce the size of the admitted prior art system, or enhance the quality of the multi-channel output. It is only in light of Applicant's disclosure that one of ordinary skill in the art would even consider modifying the admitted prior art, as claimed, and even then it is not clear how Kaneko's multiplexer would be used in the admitted prior art system.

Basically, the Examiner has cited the advantages set forth in the Applicant's own disclosure to support the proposed modification of the admitted prior art. Even if the modification *could* result in the claimed invention, the motivation for the modification does not come

from Kaneko. As a result, the proposed combination is clearly based on improper hindsight. See, for example, *In re Fritch*, 23 USPQ2d 1780,1783 (Fed. Cir. 1992), which points out that

*'Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so [quoting ACS Hosp. Systems, Inc. v. Montefiore Hosp., 221 USPQ 929,933 (Fed. Cir. 1984)].' Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious 'modification' of the prior art. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.*

Furthermore, the proposed combination would involve substantial modification of the admitted prior art circuit. Such wholesale modification of the prior art without any specific justification is improper, as explained in MPEP 2143.02:

*If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious (citing In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)...The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate" 123 USPQ at 352. (See also, MPEP 2141.02, p. 2100-107 "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention (emphasis in the original).*

It is respectfully submitted that the proposed modification of the admitted prior art to replace the adder and PWM with an arrangement that utilizes a multiple channel (time division multiplexed voice signal) represents exactly the type of substantial reconstruction and redesign mentioned in MPEP 2143. While such modification does have the advantage of eliminating the adder and the resulting loss of resolution, Kaneko does not even remotely suggest that elimination of an adder would result in improved resolution, or that such a substitution would have any particular advantages. Therefore, withdrawal of the rejection of claim 1 under 35 USC §103(a) is respectfully requested.

With respect to claim 3, it is respectfully submitted that the Examiner has misinterpreted the claimed invention. According to the Examiner, "Kaneko further discloses the claimed limitation in col. 18, lines 19-67, wherein in the plurality of states of a channel the data can be logic "1" or "0." This is not the same as an arrangement in which the channel selecting signal has a plurality of states during each cycle, in which *"each of said plurality of states corresponds to an associated channel."* The former simply turns a channel on and off, whereas the latter allows the number of channels into which the voice signal is sampled to be freely varied. Col. 18, lines 19-67 of Kaneko merely discloses the operations of a selector 222 which, when enabled (EN=1), receives a high-speed clock signal  $\phi$  H or a low speed clock signal  $\phi$  L as input in response to the level of the selection signal SA (1 or 0). As a result, withdrawal of the rejection of claim 3 under 35 USC §103(a) is respectfully requested.

With respect to claim 4, the Examiner alleges that it is "well known" for a single source to provide multi-channel signals. While it might be known to do so in contexts unrelated to the admitted prior and Kaneko, however, there is no evidence that modification of the admitted prior art, or of Kaneko's multiplexing system, to provide multi-channel signals from a single source would have been obvious. To the contrary, Kaneko clearly fails to appreciate the advantages of doing so, such as the ability to easily control the volume of a voice, and utilizes a specific multiplexer control that precludes the type of single source/multi-channel signals claimed. As a result, withdrawal of the rejection of claim 4 under 35 USC §103(a) is respectfully requested.

3. Rejections of Claims 5-12 Under 35 USC §103(a) in view of U.S. Patent No. 4,733,591 (Kaneko)

These rejections have been rendered moot by the cancellation of claims 5-11.

It is respectfully noted that new claims 13-27 do not correspond to original claims 5-11, but rather recite additional details of the voice generator. Independent claim 17 corresponds to independent claim 1, except that it recites "receiving" the plurality of voice signals from the

Serial Number 09/414,518

voice data generators, rather than "inputting" them, and further more positively recites the sampling, sending, and driving steps alluded to in claim 1.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

A handwritten signature in black ink, appearing to read 'Bj Sn', followed by a long horizontal line.

By: BENJAMIN E. URCIA  
Registration No. 33,805

Date: July 31, 2002

BACON & THOMAS, PLLC  
625 Slaters Lane, 4th Floor  
Alexandria, Virginia 22314

Telephone: (703) 683-0500

NWB:S:\Producer\beu\Pending Q...Z\YYANG414518\01.wpd